Notice No.1

Rules for the Classification of
Stern First Ice Class Ships
July 2019

The status of this Rule set is amended as shown and is now to be read in conjunction with this and prior Notices. Any corrigenda included in the Notice are effective immediately.

Please note that corrigenda amends to paragraphs, Tables and Figures are not shown in their entirety.

Issue date: November 2019

Amendments to	Effective date	IACS/IMO implementation (if applicable)
Chapter 3, Section 2	Corrigendum	N/A
Chapter 4, Section 2	Corrigendum	N/A
Chapter 6, Section 2	Corrigendum	N/A

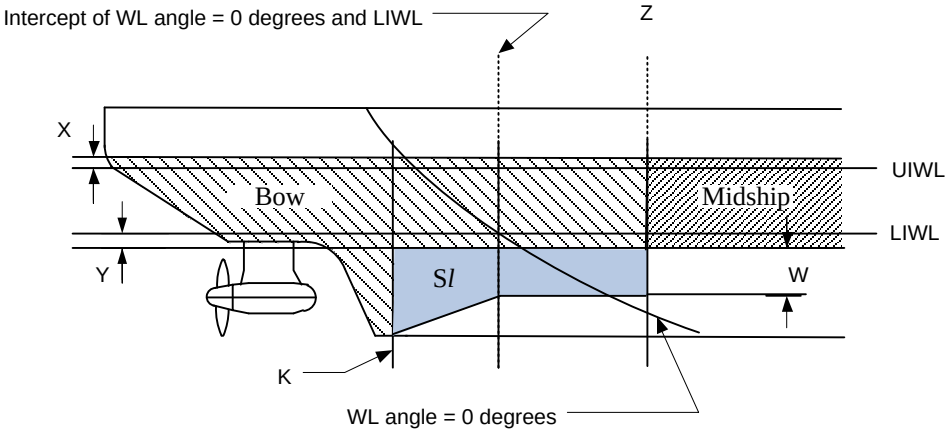
Lloyd's Register

Chapter 3
Ship Structures

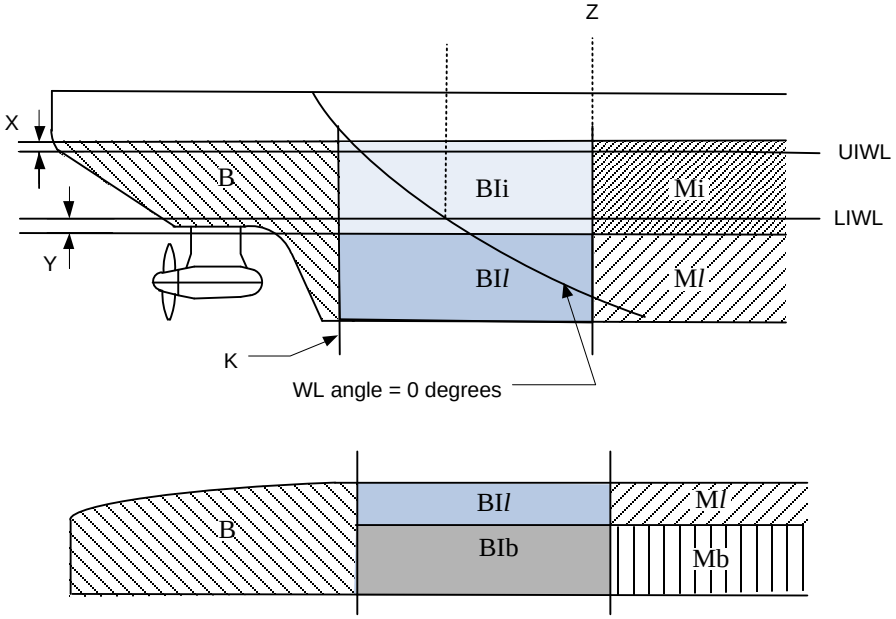
■ *Section 2*
Application of ice class to hull structures

2.4 Stern hull areas

Existing Figure 3.2.3 has been deleted in its entirety and replaced with below.



(a) Stern First Ice Class Ship stern designed to FS Rules



(b) Stern First Ice Class Ship stern designed to PC Rules

B = bow region
BIi = bow intermediate ice belt region
BIl = bow intermediate lower region
BIb = bow intermediate bottom region
Mi = midbody ice belt region
Ml = midbody lower region
Mb = midbody bottom region
Bow = Bow region
Midship = midship region
Sl = lower shoulder region

K = extent of bow region, *see* Note 1.
W = lower extent of lower shoulder region
= 2,5 m below the lower extent of the ice belt, or to a horizontal line from the centre of the propeller shaft line, whichever greater extent
X, Y = upper and lower extents of ice belt, to be taken as:

	X	*Y*
PC1-PC4 inclusive	1,5 m	1,0 m
PC5-PC7 inclusive	1,0 m	1,0 m
1AS FS	0,6 m	0,75 m
1A FS	0,5 m	0,6 m
1B FS	0,4 m	0,5 m

Z = extend of bow intermediate region for PC Rule application or shoulder region for FS Rule application, *see* Note 2.

Note 1. *Ch 3, 2.4 Stern hull areas 2.4.5*
Note 2. *Ch 3, 2.4 Stern hull areas 2.4.7*

Figure 3.2.3 Ice-strengthening extents for stern

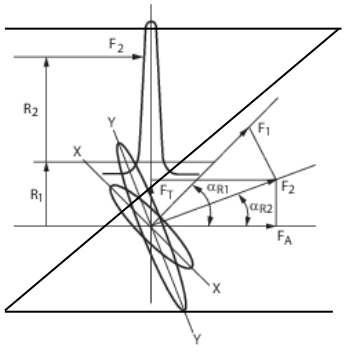
Chapter 4
Main and Auxiliary Machinery

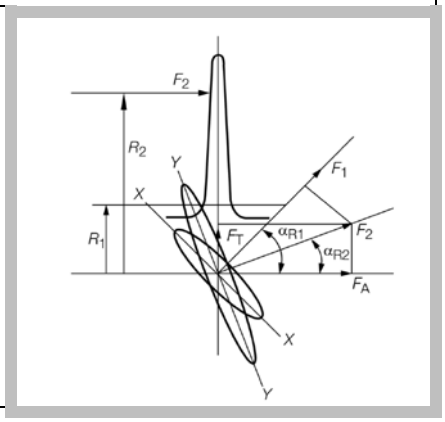
■ *Section 2*
Propulsion units

2.5 Load calculations

Table 4.2.3 Bearing axial and tangential ice loads using simplified blade break force for initial dimensioning

where
R_1 = Radius at root section, in mm
$R_2 = \left[\frac{2}{3}\ (R - R_1)\right] + R_1 \text{mm}$
R = propeller radius, in mm
$C_f t_f^2$ = actual value of blade section (chord length and thickness) at R_1 cm^3
σ_M = minimum specified tensile strength of propeller material, in N/mm^2
α_{R1}, α_{R2} = *see* Figure below





Chapter 6
Direct Calculations and Non-Standard Load Scenarios

■ *Section 2*
Framework for non-standard load scenarios

2.1 General

2.1.1 This Section provides a framework for the determination and application of ~~non-load scenarios~~ non-standard load scenarios to ships operating in ice using directional thrust propulsion units, where the operation of the ship/unit differs from that usually assumed from the standard loads scenarios for a Stern First Ice Class Ship indicated in *Ch 2 Operational and Load Scenarios*.

Published by Lloyd's Register Group Limited
Registered office (Reg. no. 08126909)
71 Fenchurch Street, London, EC3M 4BS
United Kingdom